REMARKS

The present application has claims 1-3 and 5-17 pending. Claims 12-15 have been withdrawn from consideration in the present application for allegedly being directed to a separate and distinct invention than that of the remaining claims. Claims 1, 2 and 3 are amended herein. Support for the claim amendments may be found throughout the disclosure, including, for example, in the Abstract, page 15, line 7.

In the May 12, 2009 Office Action, the Examiner maintained her rejection of claims 1-3, 5-7 and 16-17 under 35 USC §103(a) as allegedly obvious over Barton, et al., U.S. Patent Publication No. 2003/0157397 in view of Fuglevand, et al., U.S. Patent Publication No. 2004/0214057 and further in view of Mizuno, U.S. Patent Publication No. 2002/0150810. Claims 8-11 were also rejected over Barton, et al. in view of Fuglevand, et al. and Mizuno, and even further in view of Lertola, U.S. Patent Publication No. 2005/0255372.

In the Office Action, the Examiner admits that the Barton, et al. reference does not disclose a membrane electrode unit having gas distribution layers (GDLs) "wherein on [*sic*] layer has smaller dimensions that [*sic*] the other layer" (May 12, 2009 Office Action, page 3). However, the Examiner maintains that the phrase "surface dimensions" used in the claims is too broad and does not exclude the Barton reference. Specifically, the Examiner argues that the phrase "surface dimension" includes "any characteristic that

modifies space on the surface of the distribution layer" (Id., page 5). The Examiner also maintains that the Barton reference meet the claim limitations by modifying the porosity of the distribution layers (Id.).

Applicants disagree with the Examiner's position for several reasons. First, the phrase "surface dimensions" in the claim language must be read in the context of the claims and in light of the specification. From the usage in the claims and in the specification, it is clear that the phrase "surface dimensions" refers to the size, area and/or outer dimensions of the gas distribution layers. The specification sets forth that:

> "the first gas distributor substrate has a ***smaller area*** than the ionically conductive membrane and the second gas distributor substrate essentially covers the membrane" (page 4, lines 23-25, emphasis added);
>
> "[t]he ***surface of the first gas distributor substrate (4) is smaller*** than that of the membrane (1), so that the membrane (1) has a surface (6) on the front side, which is not supported by the gas distributor substrate (4)" (page 5, lines 26-28, emphasis added);
>
> "[t]he catalyst layers (2) and (3) have ***different surface dimensions; that is, they are not equally large***" (page 6, lines 2-3, emphasis added);

"[t]he ***area of the first gas distributor substrate (4) is smaller*** than that of the membrane" (page 6, lines 6-7, emphasis added);

"it is important that one of the two gas distributor substrates essentially covers the membrane and that ***the second gas distributor substrate be smaller*** than the membrane" (page 7, lines 25-26, emphasis added);

"gas distributor substrates of ***different sizes***" (Abstract, page 15, line 7, emphasis added); and

"[t]he ***first gas distributor substrate has smaller surface dimensions*** than the ionically conductive membrane, while the ***second gas distributor substrate has the same area***" (Abstract, page 15, lines 7-9, emphasis added)

In view of these text references from the specification, one skilled in the art would clearly understand the phrase "surface dimensions" in the claims to refer to the size, area and/or outer dimensions of the gas distributor substrates.

Additionally, Applicants disagree with the Examiner's position because it has not been shown that the Barton reference meets the limitations of claim 1 *even with the Examiner's interpretation of the phrase "surface dimensions."* In the May 12th Office Action, the Examiner has not pointed out where the Barton reference discloses a first gas

distributor substrate having surface dimensions (or pores) smaller than those of the membrane and a second gas distributor substrate having surface dimensions (or pores) substantially equal to those of the membrane, as required by the claims. Absence such showing, the Barton reference cannot render the claimed invention obvious.

Although Applicants believe the Examiner's position with respect to the phrase "surface dimensions" to be incorrect, they have nevertheless amended claims 1-3 to clarify the scope of the claimed invention, and hopefully gain allowance of the present application. In the claim amendments above, Applicants have changed the phrase "surface dimensions" to "size dimensions". With this language change, it is indisputable that the size, area and outer dimensions of the gas distributor substrates are being referenced in the claims. If the Examiner has a different phrase or term that she believes is more appropriate for the claim language (such as "area" or the term "dimensions" alone), Applicants request that this be communicated and Applicants will consider additional claim amendments.

If the claim language issue is overcome, Applicants believe the application to be in condition for allowance. As pointed out in Applicants' prior responses, the Barton reference does not disclose a membrane electrode unit having gas distributor substrates with different sizes, nor does it disclose a membrane electrode unit wherein a portion of the front side of the membrane is not supported by the first gas distributor substrate. The Examiner admits these deficiencies of the Barton reference in the May 12th Office

Action, as well as in earlier office actions. Based on the Examiner's own comments, it is clear that the Barton reference does not meet the limitations of independent claim 1.

Furthermore, the missing teachings of the Barton reference are not provided by the other cited references: Fuglevand, et al. and Mizuno. As outlined in detail in Applicants' prior response, the Fuglevand, et al. reference discloses a coextensive design - that is, having gas distributor substrates with equal dimensions with respect to size. Contrary to the assertions of the Examiner, Fuglevand, et al. does **NOT** teach or disclose the use of gas distributor substrates having different dimensions. In paragraph 39 (the paragraph cited by the Examiner) the use of gas diffusion layers having variable hydrophobicity is taught, **not variable size dimensions**.

Applicants question the citation of Fuglevand, et al. because the reference does not disclose, teach or suggest the use of gas diffusion layers having different size dimensions, and thus, does not provide any of the teachings missing from the Barton, et al. reference to achieve the present invention.

Likewise, the Mizuno reference fails to provide any of the missing teachings of the Barton, et al. reference. The embodiments of Mizuno are directed to membrane electrode units wherein both gas diffusion layers have the same size -- see, for instance, numerals 24 and 26 in Mizuno figure 1; numerals 124 and 126 in figures 2-3; numerals 224 and 226 in figure 4; and numerals 324 and 326 in figure 6. The presently claimed

invention requires that one gas diffusion layer have size dimensions smaller than those of the membrane and the other diffusion layer have size dimensions substantially equal to those of the membrane.

In sum, combining the teachings of Barton, et al., Fuglevand, et al. and Mizuno does not achieve the presently claimed invention. None of these reference disclose or teach - either alone or in combination - the claim element that one gas diffusion layer have size dimensions smaller than those of the membrane and the other diffusion layer have size dimensions substantially equal to those of the membrane.

With respect to the rejection of claims 8-11, the Examiner also cites Lertola in addition to Barton, et al., Fuglevand, et al. and Mizuno. Because claims 8-11 depend from, and contain all the limitations of, claim 1, the remarks set forth above pertaining to Barton, et al., Fuglevand, et al. and Mizuno are equally applicable to the rejection of these claims.

As to the Lertola reference, this reference also does not disclose or suggest the semi-coextensive design of the present invention or the claim limitation that one gas diffusion layer have size dimensions smaller than those of the membrane and the other diffusion layer have size dimensions substantially equal to those of the membrane. Accordingly, even if the Lertola reference is combined with the other cited references, the presently claimed invention would not be achieved.

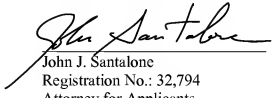
In addition to failing to disclose or teach all the claim elements of the presently claimed invention, the cited references also fail to achieve the unexpected benefits of the present invention. As outline in our previous replies, the present invention provides membrane electrode units with reduced risk of short-circuiting and better gas-tight sealing to prevent hydrogen penetration. None of the cited references (Barton, et al., Fuglevand, et al., Mizuno or Lertola) mentions the reduction of the danger of short-circuiting, nor do any of them recognize that better gas-tight sealing can be achieve by using gas distributor substrates with different size dimensions wherein a portion of the membrane is not supported by one of the substrates.

In light of the amendments and remarks above, Applicants request reconsideration and withdrawal of the rejections under 35 U.S.C. §103(a) set forth in the May 12, 2009 Office Action and respectfully solicit allowance of the present application.

No fee is deemed necessary in connection with the filing of this amendment, other than the fee for the requested three-month extension of time and the fee for the accompanying RCE, which Applicants are concurrently filing with the present response. If any additional fees are due, or an overpayment has been made, please charge, or credit, our Deposit Account No. 11-0171 for such sum.

If the Examiner has any questions regarding the present application, the Examiner is cordially invited to contact Applicants' attorney at the telephone number provided below.

Respectfully submitted,



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